2002 Washington State Population Survey
Technical Report 1: Sample Disposition and Response Rates

THIS REPORT is one of several technical appendices prepared by the Office of Financial Management to supplement the 2002 Washington State Population Survey (SPS). The survey was funded by the Legislature to provide social, demographic, and economic information about Washington residents biennially.

Responses to the survey were obtained from telephone interviews with 6,842 households that represent the state population as a whole. The survey was designed by OFM and conducted by the Gilmore Research in the Spring 2002.

Sample Disposition and Response Rates

There are two base samples for this survey – a general population sample and an expanded sample of racial minorities. The response rates are calculated separately for the two samples.

The general population sample was drawn using the random digit dialing (RDD) technique. With RDD methodology, all households in the state of Washington with an activated telephone line, either listed or unlisted, have an equal probability of being selected. A target of 6,000 households was planned for the general population sample, the main sample of the SPS.

The expanded sample was drawn from census tracts that contained the highest concentration of minority groups. This additional sample allowed researchers to obtain sufficient information on racial minority groups for statistical analyses – information that would have been missed using only the RDD method. The expanded population groups include: African Americans, Native Americans, Asian/Pacific Islanders, and Hispanics. The completion target for each of these four groups was a total of 338 households from the general population and the expanded samples combined. For instance, if 200 households of the Hispanic group completed interviews in the general population sample, then only 138 completed interviews of this group would be needed from the expanded sample. A household is defined as a minority household if the respondent is a minority member. The respondent is the household head or the person most knowledgeable about the household's financial situation.

TABLE 1
Complete Sample Disposition for the General Population Sample and Expanded Sample Cases

Sample disposition	OF00 (General Population Sample)	EF00 (Expanded Sample *Before* Adjustment)	EF00Adj (Expanded Sample *After* Adjustment)
CM: Completed Interview	6,030	812	812
PC: Partial complete	2	6	6
PB: Partial complete	196	49	49
CP: Pretest completion (Included in CM)	106	0	0
R2: Soft refusal	730	531	206
R3: Hostile refusal	315	305	118
R5: Refusal on conversion attempt	2,225	513	199
RN: Refusal for respondent not available	84	76	29
R6: Put on "Never Call" list	1,006	192	74
R70: Letter refusal	57	12	5
R63: Refusal of # of HH members	20	4	2
GB: General callback	32	43	17
BZ: Busy signal	181	36	14
NA: No answer	1,586	401	155
AM: Answering machine	525	319	124
LM: Answering machine, left message	31	1	0
DF: Deaf respondent	126	61	24
HC: Handicapped respondent	88	35	14
LG: Language problem	168	370	143
DD: Respondent deceased	7	5	5
RG: Respondent gone	118	35	14
IE: Ineligible, respondent too young	13	4	4
I2: Ineligible, respondent not minority	0	1,360	1,360
IEE: Ineligible estimate respondent not minority			1,796
BG: Business or government	2,238	147	147
DS: Disconnected	6,077	1,472	1,472
ED: Electronic device	1,287	97	97
BC: Blocked call	56	93	93
WR: Wrong number	143	40	40
DP: Duplicate number	103	23	23
NQ: Not a WA state resident	19	6	6
OT: Other misc.	52	11	11
SA: Spanish no answer	36	18	18
SB: Spanish answering machine	10	10	10
SG: Spanish general callback	0	8	8
SZ: Spanish busy signal	3	7	7
PN: Purged nonworking numbers	3,194	0	0
OQ: Over quota	3	50	50
Total Sample	**26,761**	**7,152**	**7,152**

Calculating response rates for a survey requires first a complete account of the disposition of all sample cases regarding the outcome of the interview attempt. Table 1 presents the complete sample disposition of the two samples in this survey. The first column is a description of the dispositions. The second column (OF00) contains the disposition figures for the general population sample. The

third column (EF00) contains the disposition figures for the expanded sample *before* adjusting for the non-minority status of the non-completes. The last column (EF00Adj) lists the dispositions for the expanded sample *after* adjusting for the non-minority status of non-completes. The adjustment for non-minority status of the non-completes for the expanded sample is discussed below.

Adjusting Non-completes for Non-Minority Status

The calculation of response rates requires that sample units that are not eligible be excluded. For example, because the SPS is a household telephone survey, if a business phone number is encountered, the interview is terminated. The case is declared ineligible and removed from the sample. Determining eligibility can be difficult when attempts to contact fail, as in attempts that result in busy signals, hang-ups, or answering machine pick ups. The Council of American Survey Research Organizations (CASRO) has proposed adjusting response rates to reflect the obtained proportion of ineligible households of all contacted and identified households. In such cases, an estimate is obtained for the proportion of those households that would have been ineligible if the contacts had been successful.

In the expanded sample of the current survey, such estimation is more significant, because of the high proportion of households that are ineligible due to the selection criterion of race/ethnicity. For this sample, if the respondent was not a Hispanic, African American, Asian, or American Indian, the household was considered ineligible. Because of the large proportion of non-minority households and a large number of refusal cases in this sample, the estimation of ineligibles is important to determine the response rate. The last column of Table 1 reflects the adjustment of the disposition of the expanded sample for non-minority households among those that refused or that were not successfully contacted (R1 through LG).

An estimated proportion of non-minority household was derived for the non-completes in the expanded sample. This proportion was calculated by dividing the identified non-minority households (I2) by all identified households (CM through PB plus I2). The proportion was .612. In other words, about 61 percent of the identified cases in the expanded sample were non-minority households. Therefore, about 38.8 percent of the identified cases were considered eligible. This latter rate was applied to rows R1 through LG in the third column to obtain an estimated number of eligible cases among the no-contact cases, resulting in the reduced numbers in the corresponding cells in the last column. The rows that were affected by this adjustment are R1 through LG.

Sample Disposition Summary

Table 2 contains a summary of the sample disposition details. It shows a total of 26,761 cases were released for the general population sample (OF00). For the expanded sample, the total was 7,152 (EF00Adj).

Of the 26,761 cases released for the general population sample, 6,030 resulted in completion (CM), 4,635 in refusal (RF1 and RF2), 2,904 in no contact (NA1, NA2, and SNA), 13,189 in ineligible (IEH, IEE, and IEO), and three over quota. The 7,152 expanded sample cases were disposed, after adjustment for non-minority status among the non-completes, into the following: 812 completes, 702 refusals, 534 no contacts, 5,054 ineligibles, and 50 over quota.

TABLE 2
Sample Disposition Summary

Sample disposition Summary	OF00 (General Population Sample)	EF00 (Expanded Sample *Before* Adjustment)	EF00Adj (Expanded Sample *After* Adjustment)
CM = (CM,CI,BI)	6,030	812	812
RF1 = (PC,PB,CP)	198	55	55
RF2 = (R1,R2,R3,R5,RN,RP,RG)	4,437	1,633	633
NA1 = (CB,GB,BZ,AM,LM,DF,HC,LG)	1,269	900	336
NA2 = (NA)	1,586	401	155
SNA = (SA,SB,SG,SM,SZ)	49	43	43
IEH = (DD,IE)	20	9	9
IEE = Nonminority HH (I2,IEE)	0	1,360	3,156
IEO = (BG,DS,ED,FX,NL,OT,UP,PN)	13,169	1,889	1,889
Over quota	3	50	50
Total	**26,761**	**7,152**	**7,152**

Note 1: Disposition codes in parentheses refer to those in Table 1.

Response Rates

Table 3 contains four different response rates. The reason for inclusion of different response rates is that different organizations may have varying needs for presenting information and some response rates are more appropriate than others. A total of four response rates are calculated. These rates are based on definitions of response rates set by the CASRO.

The first two rows of Table 3 are two adjustment factors. The first adjustment factor (ADJ1) represents the percent of contacted households that are ineligible for the survey because of death, age, or minority status (for the expanded sample). This is 0.3 percent for the general population sample (OF00) and 61.2 percent for the expanded sample (EF00). Note that this is only 1.0 percent for the adjusted column (EF00(Adj)). Since the minority adjustment has already been factored in to the sample disposition numbers, the only remaining ineligible households are those excluded due to age or death. The second adjustment factor (ADJ2) represents the percent of telephone numbers that are excluded from the sample because they are not residential households.

Table 3
Response Rate Calculations

Response Rate Calculations	OF00 (General Population Sample)	EF00 (Expanded Sample *Before* Adjustment)	EF00Adj (Expanded Sample *After* Adjustment)
ADJ1 = %INELIGIBLE= (IEH+IEE)/(CM +RF1+IEH+IEE)	0.3%	61.2%	1.0%
ADJ2 = %OUT OF SAMPLE = IEO/TOTAL	49.2%	26.4%	26.4%
RR1 = CM/CM+RF1+RF2	56.5%	32.5%	53.6%
RR2 = CM/CM+RF1+(1-ADJ1)*RF2	56.6%	54.1%	53.8%
RR3 = CM/CM+RF1+RF2+NA1+SNA+NA2	44.4%	21.1%	39.6%
RR4 = CM/(CM+RF1+ (1-ADJ1)*(RF2+NA1+SNA)+ (1-ADJ2)*NA2)	47.2%	37.6%	40.7%

* IEE removed from both the numerator and the denominator.

Note 1: Disposition codes on right-hand side of the equation refer to those in Table 2.

The four response rates displayed in the next four rows differ only in what is included in the denominator. To avoid confusion, the following discussion will not involve the EF00 column. The rates under this column are considered to be a less accurate representation of the expanded sample, because they do not exclude the ineligibles from refusal and no-contact cases.

The first rate (RR1) is a crude rate. It is the ratio of completes over the sum of completes (CM) and refusals (RF1 and RF2). RF1 in the denominator refers to refusals after the identifying information is collected. RF2 refers to refusals before the identifying information is collected. This rate can be considered as a crude cooperation rate, i.e. the proportion of all successfully contacted cases that completed the interview. For the general population sample, this rate is 56.5 percent and for the expanded sample (EF00(ADJ)) is 53.6 percent.

The second rate (RR2) is very similar to RR1 except that in RR2, RF2 is adjusted for death and young age of the intended respondents (ADJ1). This rate is a refined cooperation rate. For the general population sample, it increases from 56.5 to 56.6 percent. For the expanded sample, it increases from 53.6 to 53.8 percent.

The third rate (RR3) takes into account those households that are never successfully contacted during the survey period. They are included in the denominator of the ratio. The denominator for this ratio includes: completed and partially completed interviews (CM), refusals (RF1 and RF2), call-backs (NA1), no-answers (NA2), and Spanish call-backs (SNA). By including the no-contact households without adjusting for ineligibles, this rate is the most conservative of the four rates presented in Table 3. For the general population sample, this rate is about 44.4 percent. For the expanded sample, the estimated rate is about 39.6 percent.

The fourth rate (RR4) is similar to the RR3, but it takes into account adjustment for death and young age among the Spanish call-back cases (SNA), other call-back cases (NA1), and contacted cases from which no identifying information was collected (RF2). In addition, this rate is adjusted for ineligibles (ADJ2) among the no-answer cases (NA2). For the general population sample this leads to an adjusted rate of 47.2 percent. For the expanded sample, the estimated rate is 40.7 percent.

RR2 and RR4 are the two most often quoted rates with the former being generally referred to as the cooperation rate and latter referred to as the response rate.